CLAIMS

WHAT IS CLAIMED IS

1. A work chamfering apparatus for chamfering a work, comprising:

a work holding portion including a first surface and a second surface respectively contacting a main surface and another main surface of the work, for holding the work;

wherein the first surface includes a portion having a static friction coefficient greater than 0.1.

2. The apparatus according to Claim 1, wherein the portion having the static friction coefficient greater than 0.1 is formed at two end portions of the first surface, the two end portions contacting the work.

3. The apparatus according to Claim 1 or 2, wherein the portion having the static friction coefficient greater than 0.1 has a holding grain projecting out of the first surface.

4. A work chamfering apparatus for chamfering a work, comprising:

a work holding portion including a first surface and a second surface respectively contacting a main surface and another main surface of the work, for holding the work;

wherein the first surface includes a center portion and two end portions, each of the two end portions having

a static friction coefficient greater than that of the center portion, the two end portions contacting the work.

5. The apparatus according to one of Claims 1 through 4, wherein the second surface contacts the work at a plurality of locations, with a center of rotation of the work in between.

6. The apparatus according to one of Claims 1 through 5, further comprising a first grinding stone and a second grinding stone for chamfering one edge and another edge of the work respectively, and a driving portion for moving the first grinding stone and the second grinding stone thickness-wise of the work.

A work chamfering method using a work holding portion including a first surface and a second surface, the first surface including a portion having a static friction coefficient greater than 0.1, the method comprising:

a first step of holding the work with the work holding portion by contacting each of the first surface and the second surface with a main surface and another main surface of the work; and

a second step of chamfering the work by using a tool.

8. The method according to Claim 7, wherein

the portion having the static friction coefficient greater than 0.1 is formed at two end portions of the first surface, and

the two end portions contacting the work in the first step.

9. The method according to Claim 7 or 8, wherein the portions having the static friction coefficient grater than 0.1 stick into the work in the first step.

10. A work chamfering method using a work holding portion including a first surface and a second surface, the first surface including a center portion and two end portions, each of the two end portions having a static friction coefficient greater than that of the center portion, the method comprising:

a first step of holding the work with the work holding portion by contacting each of the two end portions of the first surface with a main surface of the work and contacting the second surface with another main surface of the work; and

a second step of chamfering the work by using a tool.

11. The method according to one of Claims 7 through 10, the second surface contacts the work at a plurality of locations, with a center of rotation of the work in between, in the first step.

12. The method according to one of Claims 7 through 11, wherein

the tool includes a first grinding stone and a second grinding stone, and

the second step includes a sub-step of chamfering one edge of the work with the first grinding stone, a sub-step of moving the tool thickness-wise of the work, and a sub-step of chamfering another edge of the work with the second grinding stone.

13. The method according to Claim 7, wherein the work is a R-Fe-B alloy containing cobalt at a rate not smaller than 0.3 wt% and not greater than 10 wt%.

14. The method according to Claim 7, wherein

the tool includes a grinding stone, and

the grinding stone being rotated at a speed not slower than 2000 rpm and not faster than 5000 rpm for chamfering the work in the second step.

15. The method according to Claim 7, wherein

the tool includes a grinding stone, and

the grinding stone being rotated at a circumferential speed not slower than 125.6 m/min and not faster than 314 m/min for chamfering the work in the second step.

16. A chamfering method for chamfering a rare-earth sintered magnet by using a rotating grinding stone, wherein

the grinding stone is rotated at a speed not slower than 2000 rpm and not faster than 5000 rpm and relative speed of the grinding stone with respect to an outer circumferential portion of the rare-earth sintered magnet is not slower than 0.5 mm/sec and not faster than 7.0 mm/sec, for chamfering the rare-earth sintered magnet.

17. A chamfering method for chamfering a rare-earth sintered magnet by using a rotating grinding stone, wherein

the grinding stone is rotated at a circumferential speed not slower than 125.6 m/min and not faster than 314 m/min and relative speed of the grinding stone with respect to an outer circumferential portion of the rare-earth sintered magnet is not slower than 0.5 mm/sec and not faster than 7.0 mm/sec, for chamfering the rare-earth sintered magnet.

18. The method according to Claim 16 or 17, wherein the grinding stone includes an abrasive grain having an average diameter not smaller than 100 μm and not greater than 270μm.

19. The method according to Claim 16 or 17, wherein a coolant having a surface tension not smaller than 25 mN/m

and not greater than 60 mN/m is supplied to a grinding region.

20. The method according to Claim 16 or 17, wherein the rare-earth sintered magnet contains cobalt at a rate not smaller than 0.3 wt% and not greater than 10 wt%.